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Moral Status, Moral Value, and Human Embryos: Implications for Stem Cell Research

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CHAPTER 18

MORAL STATUS AND
HUMAN EMBRYOS

BONNIE STEINBOCK

INTRODUCTION

HUMAN embryonic stem cells (ES cells) are of scientific and medical interest because of their ability to develop into different tissue types and because of their ability to be propagated for many generations in laboratory culture. Grown in a laboratory, they might one day be used in the treatment of degenerative diseases such as Parkinson's and Alzheimer's. They could provide bone cells for the treatment of osteoporosis, eye cells for macular degeneration, blood cells for cancer, insulin-producing cells for diabetes, heart muscle cells for heart disease, nerve cells for spinal cord injury. The potential for benefit to so many people is a strong argument for doing—and funding—embryonic stem cell (ESC) research. Yet ESC research is very controversial because the derivation of ES cells—at least at the present time—destroys the embryo. Thus, the morality of ESC research depends primarily

The first version of this chapter was given at the 24th Annual Philosophy Conference on moral status, held at the University of Santa Clara in 2002. I owe thanks to its organizer, Larry Nelson, for inviting me to write on the topic, and to the participants for helpful and searching comments. Versions were also presented to the Philosophy Departments at Utah University, Syracuse University, and Carnegie Mellon, where the discussions were extremely helpful. Finally, I owe a large debt to Alex John London and David DeGrazia for very helpful comments on an earlier draft.

on the morality of destroying human embryos, raising the question of the moral status of the human embryo.¹

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This chapter begins with an introduction to the biology behind ESC research. Next I present briefly four views of moral status, based on four different criteria: biological humanity, personhood, possession of interests, and having a future-like-ours (FLO). On two of these views (the person view and the interest view), embryos clearly lack moral status, but they most likely do not have moral status on the FLO account either. Only the biological humanity criterion *combined with* the view that life begins at conception results in the conclusion that very early extracorporeal embryos have full moral status, making ESC research that destroys embryos morally wrong. This explains why even some who are anti-abortion are not against ESC research: they do not view the very early, extracorporeal embryo as having the same moral status as the fetus. However, the morality of stem cell research is not completely determined by the question of moral status, for that issue, I argue, is not exhaustive of morality. Some entities, including human embryos, that do not have moral status nevertheless have *moral value*, and are entitled to respect. In the last section of the chapter, I give an account of what this respect requires and how it differs from Kantian respect. I conclude that the respect due to embryos is consistent with ESC research; that it is ethically acceptable to use either cloned embryos or spare IVF (*in vitro* fertilization) embryos; and that there are no ethical (as opposed to political) reasons that demand the development of alternative sources of human pluripotent stem cells.

EMBRYOS AND ES CELLS

In the normal course of events, an embryo is the product of fertilization, the union of male and female gametes.² Once fertilization is completed, the resulting single-cell zygote divides to produce two cells; these two divide to produce four; four divide to produce eight, to form a blastocyst. The cells of the blastocyst, known as blastomeres, are separated into two parts: an outer layer, called the trophoblast, that eventually becomes the placenta, and an inner cell mass that contributes to the future embryo. Each blastomere is *totipotent*—this means that each individual cell has the ability to form a complete human being. ES cells are derived from the inner cell mass at roughly five to nine days after fertilization, when the blastocyst is comprised of between 100 and 200 cells. Scientists used to distinguish

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¹ Paul Lauritzen (2005) disagrees. He thinks that the real concern is not the status of the embryo but that stem cell therapies, including both adult and embryonic stem cells, may erode the notion of human nature by undermining the notion of a natural human lifespan, or by blurring species boundaries.

² Embryos can also be created without fertilization via cloning or parthenogenesis.

between totipotency—the capacity to become a complete human organism—and pluripotency—the capacity to develop into certain cells. ES cells were held to be merely pluripotent, not totipotent. However, the distinction between blastomeres and ES cells is no longer so clear. Single ES cells have been used to create whole mice, and perhaps could be used to create whole human beings. (We do not know if this can be done, since no one is currently doing the research, owing to the widespread opposition to reproductive cloning.) In today’s laboratories, the distinction between totipotency and pluripotency is relatively meaningless.

Sources of Embryos

Where do the extracorporeal embryos from which ES cells can be derived come from? One source is the creation of embryos by IVF in the course of infertility treatment. Since many more embryos are created than are likely to be needed for reproductive purposes, couples may donate their ‘spare’ or ‘surplus’ or ‘discarded’ embryos for research purposes. The main advantage to using spare embryos to derive ES cells is that the vast majority will be discarded (or perpetually frozen) in any event. This makes a very strong intuitive case for allowing couples who desire to do so to donate their left-over embryos to medical research, including ESC research. Embryos can also be created via IVF specifically for research purposes, using donated gametes. Embryos can also be cloned for research purposes, using the same technique that created the cloned lamb Dolly, namely, somatic cell nuclear transfer (SCNT). Although many mammals, including sheep, goats, and cats, have been cloned, until relatively recently it was thought that it would be impossible to clone a human embryo. Then, in February 2004, a team of scientists in South Korea, led by Dr Woo Suk Hwang and Dr Shin Yong Moon of Seoul National University, announced that, using SCNT, they had cloned a human blastocyst and derived a pluripotent embryonic stem cell line from it (Hwang *et al.* 2004). The following year they announced that they had developed a faster and more efficient method of cloning embryos and deriving human ES cell lines (Hwang *et al.* 2005). While it took them 200 tries to derive just one cell line in 2004, they reported in 2005 that they were able consistently to derive a cell line in fewer than twenty tries. Unfortunately, it was later discovered that Dr Hwang had fabricated evidence for all of that research. This was a sharp set-back for therapeutic cloning, ‘forcing cloning researchers back to square one’ (Wade and Sang-Hun 2006: A12). At the time of this writing, no one has managed to clone a human embryo, although several laboratories are pursuing this goal. The advantage of cloned over fertilized embryos is that the derived stem cells will have the same genome as the donor. If it becomes possible to create tissue for replacement purposes, the fact that the tissue is genetically identical to the donor should, in theory, avoid problems of rejection.

³ I thank Lee Silver and the late Lorraine Flaherty for helping to clear this up for me.

A similar advantage might be obtained using parthenogenesis, a process by which an unfertilized egg is chemically stimulated to divide into what scientists call ‘parthenotes’—embryo-like products from which stem cells may be extracted. Tissue from stem cells derived from parthenogenesis would be easier to match with patients and less likely to be rejected because the parthenote would contain the DNA of only one person. Moreover, because a parthenote is assumed to lack entirely the potential for development as a human being, it is therefore, arguably, not a true embryo. Its creation and destruction might, therefore, raise fewer ethical concerns than those raised by embryos.

Other Kinds of Stem Cells

Embryonic stem cells are not the only kind of stem cells. Another kind of stem cell is embryonic germ (EG) cells, which are isolated from the gonadal ridges of 5- to 9-week-old fetuses donated after induced abortions. Although there are fewer data from animal EG cell experiments than from ES cell experiments, it is assumed that EG cells have less plasticity, that is, less ability to become different kinds of cells than ES cells, because the EG cells are much further along in development (five to nine weeks as opposed to five to nine days). There are also adult stem (AS) cells, which have been found in many different kinds of tissue, including bone marrow and heart muscle, as well as umbilical cord blood and the placenta. Although the term ‘adult stem cells’ is widely used, it is slightly misleading, as AS cells are not found only in adults; they are found in children and even in fetuses. A more accurate, though less commonly used, term is ‘non-embryonic stem cell’. The primary function of AS cells is to maintain and repair the tissue or cells in which they are found. Research into AS cells does not raise any special ethical issues (beyond the usual ones involved in any research using human subjects) because AS cells can be collected without lasting harm to the donor. However, many scientists believe that AS cells have less clinical promise than ES cells precisely because they are more differentiated and therefore likely to give rise only to a limited number of tissues. For this reason, they are sometimes described as *multipotent*, rather than pluripotent (Chapman *et al.* 1999). However, other scientists argue that, unlike ES cells, AS cells have already proved successful in the treatment of disease, for example, in bone marrow transplants, which have been done for the past thirty years. In November 2004 two studies in the *New England Journal of Medicine* (Laughlin *et al.*; Rocha *et al.*) concluded that umbilical cord blood works nearly as well as bone marrow transplanted from unrelated donors for leukemia patients. Another potential substitute for ethically controversial ES cells is multipotent cells derived from post-birth human placentas. Such cells could be derived without killing embryos, and might prove to have greater potential than AS cells (Yen *et al.* 2005). However, it could be a decade before the required tests and clinical

trials to determine the viability of placenta-derived multipotent cells (PDMCs) are completed.

Admittedly, no one can know at this point whether ES cells will live up to their therapeutic promise, or if they will prove more successful than AS cells or PDMCs in the treatment of disease. AS cells might prove better for some diseases than ES cells, despite the greater plasticity of ES cells. At the same time, the fact that no therapies have yet been developed using ES cells is surely no reason not to engage in ESC research. From a *scientific* perspective, it makes sense to do research on all of these alternatives. The real objection to ESC research is moral, not scientific. It is based on the opposition to the destruction of human embryos in biomedical research. 'At the heart of the debates over stem cells and cloning are questions that politicians cannot settle: When does human life begin, and what is the moral status of the human embryo?' (Stolberg 2001). To decide how we should think about human embryos, we need an account of moral status.

THE BIOLOGICAL HUMANITY VIEW

In the Western moral and legal tradition, it is often taken for granted that what gives someone (full) moral status and moral rights is *biological humanity*. All and only members of the species *Homo sapiens* have full moral status and moral rights. This view of moral status is derived from the Judeo-Christian tradition, which teaches, first, that human beings *alone* of creation are created in God's image, which gives human beings a status far superior to the rest of creation, and second, that *all* human beings are created in God's image, which makes us all God's children. The Judeo-Christian approach is clearly a moral advance over earlier views that limited moral status to members of one's own group or tribe. Theoretically (though often not in reality), it prohibited the enslaving or killing of other human beings simply because they were outsiders. On the traditional view of moral status, *all* human beings count, regardless of race, ethnicity, nationality, or gender.

When Does Human Life Begin? The Conception View

The biological humanity view holds that it is *human beings* who have moral status. But what is a human being? 'Human being' cannot be defined as any entity with a human genetic code, because *every* cell in a human body has a human genetic code. The biological humanity criterion must be understood as according moral status to the human *organism*: an integrated whole with the capacity for self-directed development. Otherwise, there is no way to distinguish human cells, which are merely parts of a human organism, from the organism itself. The next question is 'When is there a human organism?' or 'When does the human organism begin to

exist?' One answer is that a human organism comes into existence at conception or fertilization (let us call this the 'conception view'). If we combine the biological humanity criterion of moral status with the conception view about when a human organism begins, we get the view that a fertilized human egg, or human zygote, is a human being with the same moral status as any other human being, such as you or I.

Proponents of the conception view usually hold it to be a matter of 'plain biological fact' that a human organism begins at conception. However, the biological facts are not so simple, owing to the complexities of conception. Contrary to much of the anti-abortion literature, there is no 'moment of conception'. The uniting of sperm and egg—fertilization—is a process that occurs over many hours. Understanding the biology of conception presents complications to the simple picture of the uniting of sperm and egg as the beginning of human life.

During the first hours after penetration, the genetic material provided by the male and female remain segregated. The chromosomes of the egg and sperm remain in their own nuclear envelopes, known as pronuclei, because each contains only half the genetic material found in the normal nuclei of somatic cells. The chromosomes in the two pronuclei duplicate themselves separately, as they migrate toward each other. Once the single-cell zygote divides, the envelopes surrounding the two pronuclei dissolve, and the condensed chromosomes of both paternal and maternal origin align on a common spindle. This merging of chromosomes, known as syngamy, does not occur until the two-cell stage. Now each of the two nuclei of the two-cell embryo contains a complete set of forty-six chromosomes, and fertilization is complete (Silver 1998: 45). This occurs about thirty hours after initial contact of sperm and egg (Mauron 2004: 708). However, it is not clear that there is a uniquely individuated organism even at the two-cell stage, because of what is known as the twinning argument. The blastocyst contains inner mass cells (blastomeres), which are totipotent. Each is capable, if properly manipulated, of developing into a full human being (Green 2001: 48). Embryo splitting occurs naturally in the case of identical twins (or triplets or even quadruplets or quintuplets). Mary Warnock, Chair of the Warnock Committee in Great Britain, alluded to the possibility of twinning by saying, 'Before fourteen days the embryo hasn't yet decided how many people it is going to be' (Lockwood 1988: 190). This fact has ontological implications. If the blastocyst can become more than one person, then the relationship between the blastocyst and its later stages is not the same one-to-one relationship that exists between the later embryo and the fetus or born human being (Mauron 2004: 710). The activation of the diploid genome may begin at the blastocyst stage, but because twinning can still occur, that diploid genome is not the genome of one and only one individual. As Green (2001: 29) expresses the point, 'If biological humanness starts with the appearance of a unique diploid genome, twins and triplets are living evidence that the early embryo is not yet one human being, but a community of possibly different individuals held together by a gelatinous

membrane.’ It is only when twinning is no longer possible that there is a unique human organism. This happens when the primitive streak, the precursor of the nervous system, begins to form. This process, called gastrulation, occurs at about fourteen days after fertilization. This is why the Warnock Committee, as well as the Human Embryo Research Panel in the United States, recommended that research on human embryos should be limited to the first fourteen days of development.

It may be asked, what difference does it make whether the embryo could develop into one human being or two (or three or even more)? Why should the fact that it might become more than one human being deprive the early embryo of moral status? Indeed, if it might become two people, does not that give us twice as much reason to protect it? This question misses the point, which is whether the embryo, which is still capable of becoming two or more people, can be said to be a *unique* individual, for either biological or moral purposes (Green 2001: 31).

We have seen that the line marking the beginning of the new human organism can be drawn at different stages: the very beginning (the penetration of the egg by the sperm); a day or so later, when the chromosomes of the mother and father merge (syngamy); or about two weeks after fertilization begins, when the primitive streak appears (gastrulation), after which twinning is no longer possible. Which of these stages correctly marks the beginning of the new human being? There is no definite, scientific answer to this question, because it depends on one’s conception of an organism. One might hold that the cluster of undifferentiated cells within the zona pellucida is sufficiently integrated to constitute an organism, but one might also plausibly maintain that the organism begins to exist only later, when the cells become differentiated and lose their totipotency. Neither view is obviously wrong, and neither is rationally required of us (McMahan 2002: 28).

This indeterminacy regarding the beginning of the human organism may help to explain why adherents of the biological humanity criterion can differ in their views about the moral status of early human embryos, and why many opponents of abortion are not opposed to ESC research.

Abortion and Embryo Research

‘In recent polls, 57 percent of abortion opponents have said they support embryonic stem-cell research. So have 72 percent of Roman Catholics. Senator Orrin Hatch, as anti-abortion as they come, argues that “a frozen embryo stored in a refrigerator in a clinic” just isn’t the same as “a fetus developing in a mother’s womb”’ (Begley 2001: 24). In a letter to Tommy G. Thompson, the Secretary of the United States Department of Health and Human Services, Senator Hatch wrote, ‘To me a frozen embryo is more akin to a fertilized egg or frozen sperm than to a fetus naturally developing in the body of a mother’ (Wade 2001: 20). For Hatch, then,

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pregnancy, not conception, marks the beginning of the life of a human being.³The fetus growing and developing in its mother's body is a much more developed and complex entity than a pre-implantation blastocyst, and one with which we can more easily identify. As one columnist (Kinsley 2001) expressed it, 'These [blastocysts] are not fetuses with tiny, waving hands and feet. These are microscopic grouping of a few undifferentiated cells.'

Another explanation for support for ESC research on the part of opponents of abortion is that abortion is morally charged in a way that embryo research is not. How one thinks about abortion depends at least as much on one's views about sexuality, motherhood, and the proper role of women as it does on abstract views about the moral status of the embryo (Luker 1984). For many pro-lifers, abortion is equated with loose morals and the absence of sexual responsibility. By contrast, embryo research is devoid of any sexual connotations, and, moreover, is potentially life-saving, something that is not literally true of the vast majority of abortions.

Even if ESC research is regarded as morally different from abortion, many people remain troubled by the destruction of embryonic life. ESC research would be more acceptable to them if there were a way to derive ES cells (or their equivalent) without killing embryos. This might be achieved by deriving ES cells from no-longer-living embryos or from a biological entity that is not a true embryo. Both of these ideas were presented to the President's Council on Bioethics and discussed in its White Paper (2005).⁴

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Alternative Sources of ES Cells

Don Landry and Howard Zucker, both from the College of Physicians and Surgeons at Columbia University, propose to derive stem cells from no longer living embryos. Their proposal is based on a close analogy with the use of human cadavers for biomedical research or as sources of organs. If it is acceptable to remove organs from no longer living developed human beings, it should be equally acceptable (and consistent with the Dickey Amendment, which prohibits the use of federal funds for research in which human embryos are destroyed or harmed) to remove stem cells from no longer living human embryos. To be considered for use, embryos

⁴ A similar view is reflected in Jewish Law. Genetic materials outside the uterus have no moral or legal status since they are not part of a human being until implanted in the womb. 'Even in the uterus, the embryo is considered a "formed" human fetus only after the first forty days. And as the commandment to save lives is central to Judaism, the creation of embryos by cloning for therapeutic purposes is justifiable' (Neiger 2005). In an interesting parallel, Aquinas also regards forty days after conception as having moral significance, for it is only then that the (male) embryo is supposed to acquire a human form, and thus can have a human soul. Female fetuses do not become ensouled until ninety days after conception (Cole-Turner 2004: 735).

⁵ For a discussion of all four proposals considered by the President's Council on Bioethics, see Steinbock (2005).

would have to be originally created with reproductive intent, healthy enough to be cryopreserved for future reproduction, and, after thawing, turn out to be dead.

Landry and Zucker apply the traditional concept of death—the irreversible loss of the integrated functioning of an organism as a whole—and apply it to the embryo, using the notion of ‘organismic death’. They write:

For a developed human organism, brain death marks the irreversible loss of the capacity for all ongoing and integrated organic functioning. We propose that the defining capacity of a 4- or 8-cell human embryo is continued and integrated cellular division, growth, and differentiation. We further propose that an embryo that has irreversibly lost this capacity, even as its individual cells are alive, is properly considered organismically dead. (Landry and Zucker 2004)

A significant fraction of embryos created *in vitro* simply stop dividing after the four- to eight-cell stage. Most of these spontaneous ‘cleavage arrests’ are associated with chromosomal abnormalities, preventing the embryos from being a good source for stem cells. However, some turn out to be ‘mosaic’, that is, they contain some normal blastomeres as well as cells with chromosomal abnormalities. The normal blastomeres could be a source of ES cells.

The proposal raises questions about both the definition of death and the criteria for determining it. The arrested embryos must contain at least some viable cells that retain normal developmental potential; otherwise they will not be a source of stem cells. Placed in the proper milieu, some of these cells might resume dividing. The President’s Council on Bioethics asked, ‘How, then, can we be sure that such an embryo is really dead? More generally, can we confidently declare that an embryo is dead just because all its cells have stopped dividing? What exactly do we mean by the “organismic death” of an embryo?’ (2005: 12).

Part of the problem is that the concept of organismic death—the death of an organism *as a whole*—has not been commonly applied to an embryo, that is, to any largely undifferentiated organism so close to the beginning of its life. A further question is how to determine its death. This is more difficult than for an adult because the embryo has no integrating vital organs: no brain to be considered ‘brain dead’, no heart that has ceased to beat and pump blood (President’s Council 2005: 12). Is spontaneous cleavage arrest the same as death? Some might view this question as sophistical. It might be argued that the point is not whether death has occurred. Rather, it is that embryos that have stopped dividing lack the potential for further development. Without the potential for further development, they are not genuine human organisms, and so do not have human moral status.

If, however, the potential for further development is a *sine qua non* of moral status, then non-viable embryos—embryos that are living but cannot develop further, and therefore are not candidates for transplantation into a uterus—are not human beings. This interpretation is rejected by, for example, the Roman Catholic Church. When Richard Doerflinger, Deputy Director of the Secretariat for Pro-Life Activities, United States Conference of Catholic Bishops, was asked in his testimony

before the Human Embryo Research Panel (HERP) in 1994 whether it would be permissible to use in research non-viable embryos created during infertility treatment, he gave a categorical 'no'. Their lack of developmental potential does not deprive them of their humanity. Non-viable embryos are dying human subjects, he said, and to use them in research would be just like using a dying AIDS patient in an experiment without that individual's consent (Green 2001: 18). One question, then, about the Landry–Zucker proposal is whether it can persuasively draw a sharp distinction between a dead embryo and a non-viable embryo.

Another proposal comes from Dr William Hurlbut, who is himself a member of the President's Council. Rather than redefining embryo death, Hurlbut proposes a technique that would create a biological artifact, lacking the moral status of a human embryo, from which pluripotent stem cells could then be derived (President's Council 2005: 36). According to Dr Hurlbut, what differentiates a human embryo from other human cells is that it contains within itself the organizing principle for the self-development and self-maintenance of the full human organism. An entity that lacked this intrinsic potential for development would not be a true embryo. This can happen in natural reproduction, when an embryo lacks certain essential elements, making it impossible for the embryo to develop. For example, research in mice has demonstrated that mutations in the *Cdx2* gene cause death at the blastocyst stage because the embryos fail to form a trophectoderm, which normally gives rise to the placenta. Hurlbut's proposal attempts to mimic these natural examples, using a technique he calls altered nuclear transfer (ANT). ANT is based on the SCNT technique, with one modification. Particular developmental genes in the somatic cell nucleus would be silenced prior to transfer to the enucleated oocyte. 'Removal of cells from, or even disaggregation of, this artifact would not be killing or harming, for there is no living being here to be killed or harmed' (President's Council 2005: 37). To ensure that the stem cells taken from the artifact were usable, the missing genes would be reinserted after the cells were extracted.

Since ANT is as yet untested experimentally (even in animals), it is not known whether it would work in humans. SCNT, which inserts a normal nucleus into the enucleated egg cell, has proven difficult enough; some commentators are highly skeptical that ANT, which inserts a defective nucleus into the egg cell, would work (President's Council 2005: 90). Another source of opposition comes from those who think it is unethical to create embryo-like entities and then intentionally modify them to prevent them from developing into human embryos. Robert Lanza of Advanced Cell Technologies says, 'I think this is an abuse of cloning technology. It will be a sad day when scientists use genetic manipulation to deliberately create crippled embryos to please the Church' (Holden and Vogel 2004: 2175).⁵

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⁶ In their White Paper, the President's Council on Bioethics (2005: 69) makes the following observation: 'Curiously, in September 2002, Advanced Cell Technology, the company for which Dr. Lanza works, filed a patent for producing genetically altered artificial embryo-like entities, partly for the same purposes.'

The Hurlbut proposal is based on the idea that human pluripotent cells might be derived from something that is not an embryo, not an organism, not a 'living being'. However, as we saw earlier, some maintain that a distinctive human organism appears only at gastrulation, when twinning is no longer possible. If blastocysts are not uniquely distinctive human organisms, it is not clear why ANT is superior to SCNT, or the use of spare IVF embryos. Moreover, ANT is complex, technically challenging, and not even testable without time-consuming experiments involving substantial investment of precious resources (President's Council 2005: 47), and so could set back the progress of ESC research considerably. As Michael Gazzaniga, a member of the President's Council, expressed it in an appendix to the White Paper: 'Why delay what we know works with this sideshow?' (2005: 77).

The motivation for finding alternative sources of human pluripotent cells is the conviction that the destruction of human embryos is morally wrong. This is in turn based on acceptance of the biological humanity criterion. But is this the correct criterion of moral status? In the following sections I will argue that it is not, that species membership by itself does not endow or deprive a being of moral status. I begin with the critique of the biological humanity criterion of moral status presented in Mary Ann Warren's classic article on abortion (1973).

THE PERSON VIEW

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Warren argues that the conservative⁶ on abortion confuses two distinct senses of the word 'human being': a biological or genetic sense which means 'member of the species homo sapiens' and a moral sense which means 'full-fledged member of the moral community'. Unquestionably, the human fetus is human in the biological sense (what else could it be?), but it does not follow that it is human in the moral sense. Indeed, this is exactly what is at issue in the abortion debate. It needs to be *argued* (not simply assumed) that biological humanity endows a being with moral humanity. And this, Warren maintains, cannot be done.

To show the irrelevance of species membership to moral status, Warren gives the following thought experiment: Imagine we came into contact with non-humans who were sentient, rational, and capable of moral agency (for example, intelligent aliens, like ET). Surely the fact that they were not genetically human, not members of our species, would not determine, or even be relevant to, their moral status. We would not be justified in eating them, or enslaving them, or putting them in zoos, or using them (without their consent) in scientific research. This shows that being biologically human is not a necessary condition of moral status. Nor is it a

⁷ The terms 'conservative' and 'liberal' are terms of art, standard in the abortion literature, and are not intended to convey general political positions.

sufficient condition, according to Warren, for some genetic human beings lack full moral status, for example, irreversibly unconscious human beings, such as those in a persistent vegetative state (PVS) or anencephalic infants, who are born without a cerebral cortex. Someone in PVS is alive, but, as it might be expressed, the person is no longer there. Anencephalic infants are biologically human, but without a cerebral cortex, they lack the capacity to become persons. According to Warren, it is persons who have moral status, and genetic humanity is only an imprecise marker for personhood. Warren then goes on to suggest that the traits that are most central to the concept of personhood are sentience (the capacity to experience pleasure and pain), consciousness, self-consciousness, the capacity for reasoning, self-motivated activity, and the capacity to use language. Warren does not give an account of why these traits have moral significance, but rather suggests that if we were trying to decide whether an alien life form has 'human rights' or whether it may be used, for example, as a source of food, it would be the presence or absence of these traits that would settle the question.

The implication for the moral status of embryos is clear. Embryos have none of the person-making characteristics Warren enumerates. As we have seen, whether very early embryos are human organisms, and thus qualify as human beings in the genetic sense, can be debated, but ultimately it does not matter on the person view, since it is persons, not genetic human beings or human organisms, that have moral status.

Warren's claim is not that moral status is contingent on possession of *all* the person-making characteristics she lists. It is rather that beings that have *none* of these characteristics cannot be persons, or human beings, in the moral sense. Since embryos have none of these characteristics, they cannot be members of the moral community. Moreover, even late-gestation fetuses have fewer person-making characteristics than most adult mammals, or even an adult fish. If fish do not have a right to life, neither do fetuses.

One obvious difficulty with the person view is that it appears to exclude many individuals who most of us think are members of the moral community, such as elderly people with advanced dementia, individuals with severe developmental disabilities, and even normal newborns. (Their potential to become persons cannot be a basis for ascribing moral status to them without being a basis for ascribing moral status to fetuses and embryos.) Advocates of the genetic humanity criterion maintain that any criterion other than genetic humanity will have this fatal flaw. However, it may be possible to modify the person view so that it does not exclude so many human beings from the moral community. Instead of basing moral status on fairly high level abilities, such as the capacity for abstract thought or self-consciousness, it can be argued that the important characteristic is *sentience*, or the capacity to feel pain (and pleasure). An advantage of sentience-based views is that they are more inclusive, and thus less counter-intuitive, than views based on personhood.

Another defect of the person view is its failure to explain *why* certain psychological abilities, such as the ability to use language or to reason, are relevant to moral status, treatment, and rights. By contrast, the moral relevance of sentience is clear: the fact that a being can suffer gives us a reason to treat it in certain ways and not in other ways. To take a homely example, it is morally permissible for a child to pluck the petals off a daisy, while saying ‘He loves me, he loves me not’. It is not permissible for the child to pull the legs off an insect, or the feathers off a (trapped) bird. It *matters* to sentient beings what one does to them; they have a stake in their own lives and how their lives go. This insight is central to what I call ‘the interest view’.⁷

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THE INTEREST VIEW

The interest view of moral status derives from Joel Feinberg’s ‘interest principle’, which was intended to answer the question, What kinds of beings logically can have rights? Feinberg (1974) suggests that the answer comes from the purpose or function of rights, which is to protect interests. The interest principle states that rights-holders must be capable of having interests of their own, which rights are intended to protect. Feinberg’s insight about the logical conditions of having rights can be applied more generally to having moral status. For what is it to have moral status? As noted earlier, an entity has moral status if it counts or matters, from ‘the moral point of view’ (Baier 1965). And this in turn means that when we moral agents are deciding what we ought to do, we are required to take its interests seriously. Obviously, if a being does not have interests, its interests cannot be considered.

Next, Feinberg makes a conceptual connection between interests and sentience. In general, to have an interest in something is to have a stake in it. Interests are connected to what we care about or want, to our concerns and goals, to what is important or matters to us. If we think of interests as stakes in things, and understand what we have a stake in as defined by our concerns, by what matters to us, then the connection between interests and sentience becomes clear. Sentience, narrowly conceived as the ability to feel pleasure and pain, can be thought of more broadly as the capacity for having experiences of any kind, for awareness of our surroundings. Sentience, broadly conceived, is a necessary condition for having interests, for beings that completely lack awareness or experiences cannot care about anything.⁸ Nothing matters to non-sentient, non-conscious beings.

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⁸ This section summarizes the main arguments in Steinbock (1992, ch. 1).

⁹ There are some human beings who lack the capacity to feel physical pain. It is sometimes claimed that such people are a counter-example to the claim that only sentient beings have interests. However, I would say that while it is true that they are not sentient in the extremely narrow sense of being able to feel physical pain, they are sentient in the sense of having sensory experiences, such as vision

One question raised by sentience-based views is, which living organisms are sentient? Surely all mammals are sentient (though Descartes, justifying vivisection, notoriously denied this), but what about clams or insects? Ants sprayed with insecticide will scurry away, and if directly hit, will writhe. If lemon juice is dropped on a clam, its muscles contract. Are these pain behaviors, or mere reflexes, analogous to heliotropism in plants? To some extent, this is an empirical question. We ascribe sentience to mammals, but not to plants, because plants do not have a nervous system. Whether insects or mollusks can feel pain depends, in part, on the kind of nervous system, if any, they have. But in part this is a conceptual question about what sentience, or consciousness generally, is. We have an intuitive notion of what it is to be 'awake and aware', but the analysis of consciousness is difficult, controversial, and (obviously) not something to be attempted here. Suffice it to say that if the bar is set too low, then any living creatures that react to their surroundings, e.g. bacteria, will be said to be sentient. Set the bar too high, and beings that lack self-consciousness, e.g. dogs and human babies, will be said not to be sentient. What is needed, for moral purposes, is a notion of sentience that is connected with feelings. Babies can experience pain, loneliness, and fear, and they can be comforted and soothed. Bacteria cannot.

To understand the importance of sentience to moral status, consider something that is undoubtedly non-sentient: an ordinary rock, say. It is impossible to think of a rock as having interests. This is because it does not matter to the rock what is done to it. A rock has no interests of its own, and so no welfare that is compounded out of its interests. Nothing can be done for *its* sake. Thus, sentience appears to be both a necessary and a sufficient condition for having interests. Necessary, because unless a being is sentient, it does not matter to it how it is treated. Sufficient, because if a being is sentient, it does matter to it how it is treated. Thus, *all* sentient beings have moral status. And *only* sentient beings have moral status because without the capacity for sentience—or, more broadly, experiences and emotional states that accompany them—a being cannot have interests and a welfare of its own, making it impossible to consider its interests and welfare from the moral point of view.

The implication of the interest view for embryos is exactly the same as the implication of the person view: embryos have no moral status. They are not sentient beings; they are not even close. A blastocyst, lacking even the very beginnings of a nervous system, has about as much consciousness as a plank of wood. And even after the primitive streak forms, at around fourteen days after fertilization, the nervous system is too undeveloped to make possible any experiences, even the most rudimentary ones, such as the experience of pain. Without experiences of any kind, embryos cannot have wants. Without wants, they cannot have a stake in

and hearing, and presumably are capable of experiencing physical pleasure. They are also sentient in the broader sense of having the capacity for conscious experiences. Admittedly, they do not have an interest in not experiencing physical pain (since they cannot feel it), but this does not mean that they do not have other interests, including an interest in continued existence.

anything, including their health or continued existence. I am certainly not denying that embryos can be healthy or deformed, or that they can live or die. My claim is rather that they do not have an interest in being healthy or in continuing to exist.

Some people think this is because I have confused two senses of ‘interest’. In the first sense, which we may call interest_1 , to have an interest is to *take* an interest in something, or to be interested in it. Another sense of ‘interest’, which we may call interest_2 , refers to things that are *in* someone’s interest. Taken together, a being’s interests_2 —all those things that are in its interest—constitute its welfare. The two senses do not always or necessarily coincide. I can *take* an interest in something (e.g. eating rich desserts) without its being *in* my interest; equally, something can be *in* my interest, or promote my welfare (e.g. refraining from rich desserts) even though I do not *take* any interest in it. Lacking any form of consciousness, embryos clearly cannot have interests_1 , but does that mean that they cannot have interests_2 ? Don Marquis thinks they can. He writes, ‘The plant world appears to provide counter-examples to this assertion. Plants can flourish or wither. Therefore, they seem to have a welfare of their own’ (Marquis 1994: 73).

But this is exactly what I wish to deny. From the fact that plants can flourish or wither, I do not think it follows that they have a welfare of their own. To say that a being has a welfare of its own suggests that one can act on its behalf, or for its sake. Clearly, one can do this for sentient beings, to whom it matters how their lives go. It does not matter to mere things, or to living non-sentient beings, like plants. For this reason, I do not think that they have a welfare or sake of their own, at least not in the sense in which sentient beings do. *We* may have reasons to make sure plants do not die, but the reasons do not refer to *their* welfare. In seeking to preserve them, we are not acting on their behalf.

However, even if this is right about plants, it may be objected that it is not right about embryos, because of an important difference between plants and embryos, namely, that embryos can, and plants cannot, become conscious beings with interests and a welfare of their own. This insight is the basis of Don Marquis’s ‘future-like-ours’ (FLO) account of the wrongness of abortion (Marquis 1989).

MARQUIS AND THE FLO ACCOUNT

Marquis begins by asking why it is *prima facie* wrong to kill an adult human being, and answers that killing inflicts on the victim one of the greatest losses one can suffer: the loss of one’s life. ‘The loss of one’s life deprives one of all the experiences, activities, projects, and enjoyments that would otherwise have constituted one’s future Inflicting this loss on me is ultimately what makes killing me wrong’

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(Marquis 1989: 189–90). But exactly the same loss is inflicted on a fetus⁹ when it is aborted. If it were not aborted, it would come to have a life it would value and enjoy, just as you and I value and enjoy our lives. Therefore, abortion is seriously wrong for the same reason that killing an innocent adult human being is seriously wrong: it deprives the victim of his or her valuable future. Although admittedly an early-gestation fetus has no desires now, and thus cannot *take* an interest in anything, Marquis insists that the early fetus nevertheless has an interest₂ in its future; a valuable future is *in* its interest. Just as we can attribute interests to a presently insentient being (someone in a temporary coma, for example) in virtue of desires it had when it was formerly sentient, we can ‘attribute interests to a presently insentient being in virtue of its well-being at some future sentient stage of its natural history’ (Marquis 1994: 72).

One of the defects of the interest view, according to Marquis, is that it cannot explain the wrongness of killing a temporarily comatose individual. For if sentience is a condition of having interests, then someone in a coma has no interests, including the interest in continued existence. Since everyone agrees that it would be wrong to kill someone in a temporary coma, the explanation has to be in terms of the value of his future existence. But exactly the same future of value applies to the presently non-sentient fetus.

This is a mistaken representation of the interest view. On the interest view, a temporarily comatose person *does* have an interest in continued existence based on the desire to go on living. Admittedly, while comatose, he does not have that or any other *conscious* desire. But he still *has* desires, in a dispositional sense. This is persuasively argued by David Boonin (2003), who draws an analogy between desires and beliefs. Not all of our beliefs are ones of which we are consciously aware. They are not all *occurrent* beliefs. Many of our beliefs are *dispositional*. For example, it is unlikely that ten minutes ago you were consciously aware of believing that a triangle has three sides; it was not an occurrent belief. Yet it is one of your beliefs, a belief you already have. It would be implausible to think that it goes out of existence when you go to sleep and is created again when you wake up.

The same is true in the case of desires. My desire to go on living is not one I consciously entertain very often, but it is one of my desires, and remains so when I am asleep or temporarily comatose. Thus, contrary to Marquis, the example of a temporarily comatose adult does not expose a deficiency in the interest view. The interest view does not (implausibly) require permanent wakefulness as a condition of moral status. However, it does limit moral status to beings that have been at some time conscious and sentient, for this is a condition of acquiring interests. To be precise, then, we should say that sentience is a condition, not of *having* interests, since temporarily non-sentient beings can continue to have interests in

¹⁰ Marquis (1989) refers to fetuses, not embryos. However, it is clear that what he has to say applies as much to the implanted embryo as it does to the fetus.

the dispositional sense, but of *acquiring* interests. By contrast, non-sentient beings like embryos cannot acquire interests in the first place, because they have no desires, occurrent or dispositional, that could be the basis for these interests.

The interest view and the FLO account disagree sharply about the moral status of the fetus. However, the implication of the FLO account for the moral status of the pre-implantation embryo is less clear. For, as we saw earlier, the twinning argument casts doubt on the identity of the pre-implantation blastocyst with one specific individual. If this identification is not possible at the blastocyst stage, then the blastocyst presumably does not have FLO, since the valuable future the blastocyst has is the future of the specific adult it would become. (If FLO were not constrained in this way, sperm and ova could also have FLO, and contraception would be as seriously wrong as abortion.) And if a blastocyst does not have FLO, then killing it is not wrong, or at least not wrong for the same reason as it would be wrong to kill you or me. *Non-viable* blastocysts certainly lack FLO, but whether they would yield usable stem cell lines remains unclear.

To recap: On views of moral status that are not based on biological humanity, such as the person view, the interest view, and arguably the FLO approach, very early human embryos do not have moral status, or at least not the same moral status as you or I. Only on one view of moral status—the conception view—does the very early human embryo have full moral status. However, the conception view is rejected even by many who accept the biological humanity criterion. Is there any reason to accept the conception view, and accord full moral status to blastocysts?

The following example (ascribed to Leonard Glantz) shows, I think, that no one really does think that blastocysts have full moral status. Suppose a fire broke out in an infertility clinic where 100 frozen embryos were stored. Imagine that a 2-month-old baby was trapped in the clinic and you could either save one baby or 100 embryos, but not both. Would anyone hesitate for a second before saving the baby? Surely not, but if embryos were really morally equivalent to babies, the fact that there were many embryos and only one baby would be a decisive reason for saving the embryos (Annas 1989: 22).

RESPECT FOR EMBRYOS

I have been arguing that very early, extracorporeal embryos do not have moral status, and that this is reflected not only in most theories of moral status, but also in ordinary intuitions (as the fire in the clinic example shows). Should we conclude that blastocysts are just ‘stuff’, of no moral significance? In other words, if embryos lack moral status, can they be treated like any other bodily tissue? Such a conclusion, while intellectually tidy, is likely to make many people profoundly uncomfortable. Many people, even those who support ESC research because of the

potential benefits to humanity, share the intuition that there should be limits to the uses of human embryos.

This compromise position, between those who think that human embryos are human subjects with all the rights of any other human subjects, and those who think that human embryos are disposable tissue, has been taken by several important official bodies, including the Warnock Committee in Great Britain and HERP in the United States. The HERP report concluded that, while the pre-implantation human embryo ‘does not have the same moral status as infants and children’, it ‘deserves special respect’ and ‘serious moral consideration as a developing form of human life’ (Green 2001: 92). Critics of HERP have called its compromise position incoherent. Dan Callahan, for example, wrote, ‘An odd form of esteem—at once high-minded and altogether lethal. What in the world can that kind of respect mean?’ (Callahan 1995: 39). Callahan concludes that offering ‘respect to embryos’ is really just a way to feel less uncomfortable while preparing to kill them.

The challenge, then, is to give content to the notion of respect for embryos: the basis of such respect and what restrictions it imposes on us. In the next section I will argue that although the interest view gives the correct account of *moral status*, we need another category to adequately explain our moral judgments. I call this category ‘moral value’.

MORAL VALUE

The interest view limits *moral status* to beings with interests, and I have argued that only sentient beings have interests. However, this is consistent with recognizing that non-sentient beings can have *moral value*. A being has moral value if there are moral reasons to treat it in certain ways and not in others. Some of those reasons may concern the interests of people or animals, bringing the matter within the morality of interests, but not all of them do. The distinction between moral status and moral value concerns the kinds of reasons that are invoked. Whatever our reasons for protecting works of art, ancient oaks, wilderness areas, and entire species of plants or animals, these reasons do not stem from *their* interests or *their* welfare, because they do not have any. There are moral reasons for protecting non-sentient beings, but they are importantly different from the reasons provided by sentient beings. The motivation for distinguishing between moral status and moral value is that this avoids conflating very different kinds of moral reasons.¹⁰

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In order to show that there is this category of moral value, distinct from moral status, I offer the following examples.

¹¹ This explains the difference between the view I am proposing and Mary Ann Warren’s (1997) multi-criterial view of moral status. She accords moral status to the beings I claim have only moral value.

The Flag

Consider the American flag, the proper display and disposal of which (especially after 11 September 2001) has received a great deal of attention. A flag that is torn and tattered is supposed to be ceremonially burned and the ashes discarded properly, either by being buried or by being scattered over veterans' graves. Here are some typical comments taken from an article about the proper disposal of the American flag: 'Many people will take them and just throw them in the garbage. It just isn't right.' 'The most important thing is do not throw it in the garbage. It deserves more respect than that.' I take it these are not simply statements about flag etiquette; they are moral claims. However, such moral claims are not supported by golden-rule-type reasons, such as 'How would you like it if you were a flag and someone tossed you in the trash?'

It might be objected that, while appeal to the interests of the flag is absurd, nevertheless the wrongness of improper disposal of the flags belongs within the morality of interests, namely, the interests of those who are offended by such treatment. In other words, to say that the flag has moral value is just to say that it has symbolic value for most Americans, and that their feelings about the flag should be respected. It seems to me that this is partly right and partly wrong, depending on whether one is inside or outside the group to which the object in question has symbolic value. An object can have symbolic value only for those within a particular group: a nation, a culture, a religion. For those outside the group, a flag is just a piece of cloth, although a piece of cloth that has significance for others. Similarly, the Koran is sacred to Muslims, but not to Christians or Jews. It is wrong for Christians or Jews to treat the Koran disrespectfully, not because the Koran has or ought to have symbolic value for them, but because such handling is deeply offensive to Muslims, and causing such offense is *prima facie* wrong, for golden-rule-type reasons. However, from an internal perspective, reference solely to the feelings of members of the group is not an adequate explanation of why it is wrong to toss a flag in the garbage or flush the Koran down the toilet. The claim made by the speakers quoted above is not (or not merely) that throwing the flag in the garbage offends *them*, or that the wrong consists in the hurt to *their* feelings. Their claim is rather that the flag, as a symbol of America, is owed respect. They would regard throwing it in the garbage as wrong even if it was done in secret, so that no one knew about it and could be offended. Equally, it would be wrong even if no one cared. Part of what is claimed is that people *ought* to care.

Of course, one might deny that the American flag deserves respect. The burning of the flag might be intended to show disrespect for the country for which it stands, and specifically for certain of its policies. Still, such a protest is possible only because the flag has symbolic value. One could not—logically could not—make a political protest by burning an old T-shirt.

The flag is an example of something that has moral value, even though it is not itself a moral subject or rights-bearer, and does not belong within the morality of interests. At the same time, the symbolic significance of a flag is entirely conventional and cultural. It is certainly possible to imagine human groups that do not have flags at all, and some nations (the United Kingdom, for example) do not take their flags quite as seriously as Americans do. Presumably, the claim that embryos deserve special respect is not intended to be culturally specific in this way. Let us turn, then, to a different example, one with a more universal appeal.

Human Remains

Respect for a flag is culturally specific in a way that respect for human remains is not. That is, although societies differ in their views about *how* to treat the dead, with some insisting that bodies must be buried and never burned, and others insisting that they must be burned and never buried, every human society has rituals and ceremonies for the disposal of dead bodies. Rituals for disposing of dead bodies are so much a part of human history and culture that they are part of what it means to be human. Indeed, debates over whether a particular group can be seen as ‘human’ or ‘pre-human’ often turn on whether they had burial customs. These rituals are intended to assuage the grief of the living, but also to pay respect to the dead. (We see this when, for example, an unknown infant is found dead in a trash can, and given a decent burial, even when there are no family members to mourn.)

The moral importance of showing respect for the dead becomes evident when dead bodies are treated inappropriately. When it was discovered some years ago that a crematorium in Georgia had not cremated bodies, but rather scattered the remains over the crematory property, people were outraged, and this too is a moral emotion. Yet dead bodies are inanimate corpses, decaying pieces of organic matter, without feelings or awareness. How are we to understand the idea that the dead are entitled to respect?

It might be claimed that ‘respect for the dead’ can be accounted for within the morality of interests. Many people have an interest in what happens to them after they die. They want to be buried in a particular spot or not to be buried at all, but cremated. If someone has asked to be cremated, and others agree to carry out this plan, then it is a wrong to that person, and a violation of his rights, to fail to carry out the promised cremation (much less to scatter the remains about). In addition, the morality of interests requires us to consider the feelings of survivors. People want their loved ones put to rest, not treated like trash. Both of these reasons—the prior wishes of the deceased and the feelings of the survivors—play a role in explaining the moral wrong of the action of the Georgian crematorium, but they are not the whole story. There would be something missing in a society that simply dumped human remains without ceremony. As a story in the *New York Times* expressed it,

‘A funeral, like ceremonies of birth and marriage, signifies that a person belongs somewhere, which is a kind of definition of being human’ (Sengupta 2002).

Dead bodies are owed respect both because of what they are—the remains of the once-living human organism—and because of what they symbolize—the human person who is no more. Human embryos deserve respect for similar reasons: they are a developing form of human life, and also a symbol of human existence. John Robertson puts the point this way:

Treating the early embryo with special respect as a thing of unique value does not depend on metaphysical assumption or religious belief, though it does depend on openness to the meanings that the early embryo stimulates. Precisely because the early embryo is genetically unique and has the potential to be more, it operates as a powerful symbol or reminder of the unique gift of human existence The flag, the Torah, certain works of art, religious relics, and human remains are examples of other objects that are revered and respected because of their symbolic import, even though they are not themselves moral subjects or rights-bearers. (Robertson 1990: 447)

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A human embryo is something special, and a source of awe, precisely because it contains within itself the capacity to develop into a complete human being.¹¹ Moreover, human embryos are part of the human story, because every living human person began life as an embryo. If the entire life of a human being has intrinsic value, then it is reasonable to accord value to the very beginning stages of that life. This does not require us to treat human embryos as if they had interests, much less as if they were autonomous beings worthy of Kantian respect. But neither are they nothing. Michael Sandel, a member of the President’s Council, expresses this view when he says, ‘As one who supports embryonic stem cell research, I do not regard the early embryo as inviolable. But neither do I regard it as disposable, open to any use we may desire or devise’ (President’s Council 2005: 91).

The claim here is not the strong claim that a human embryo is sacred or inviolable, which suggests something like a right to life, but the weaker claim that human life in all its stages is worthy of respect. Some have thought that such respect is incompatible with research that destroys the embryo. In the next section I will argue that this is a mistake that equates respect with Kantian respect.

RESPECT FOR HUMAN EMBRYOS

I have been arguing that embryos do not have moral status because they do not have interests. However, as McMahan points out, the morality of interests does not

¹² Actually, no one knows if cloned human embryos have the potential to develop into fetuses and babies, and some scientists think that they could never become ‘normal’ organisms (Jaenisch 2004: 2787). One might think this would be a reason in favor of using cloned embryos, as opposed to spare IVF embryos, in ESC research, but, to my knowledge, no one has made this argument.

exhaust all of morality, but only that aspect which is concerned with the effect our action has on the interests or well-being of others (2002: 245). Morality includes also the ‘morality of respect’, which is ‘made up of constraints on our behavior toward others that spring from our recognition of others as mature agents on an equal moral footing with ourselves’ (Quinn 1984: 39). Let us call this kind of respect ‘Kantian respect’.

According to Kant, persons (autonomous agents) have a special moral worth or dignity, which is the basis for the respect that is owed to them. Respect for *persons*, as Kant (1959: 46) instructs us, means never using persons merely as means to our ends, but always treating them also as ends in themselves. This rather obscure phrase means that we are required to act on principles that ‘sustain and extend one another’s capacities for autonomous action. A central requirement for doing so is to share and support one another’s ends and activities at least to some extent’ (O’Neill 1986: 323–4). To treat others as ends in themselves, we must take seriously their ends—their interests, projects, and goals—and not just our own. Since pre-implantation embryos do not have interests, projects, or goals, they are not ‘ends in themselves’. For this reason, the notion of Kantian respect cannot be intelligibly applied to embryos.

Should we conclude that embryos are mere things, and that we can do whatever we want with them? Surely not. As Michael Sandel has said in an interview, ‘It’s a mistake to claim respect is all or nothing, on or off’ (Meckler 2002). We demonstrate respect for embryos as a form of human life, not by treating them as inviolable and prohibiting embryo research, but by placing restrictions on their use. Respect for embryos rules out frivolous or trivial uses, such as using human embryos to create jewelry or cosmetics. These are situations in which there is no need to use human embryos and their use displays contempt rather than respect for human life. However, respect for human life does not rule out significant research that could cure devastating diseases or save lives—indeed, quite the contrary.

The Discarded–Created Distinction

Some think that it is permissible to use embryos left over from infertility treatment in research, since they would otherwise be discarded, but that embryos may not be created for research. This position was taken by the National Bioethics Advisory Commission, on the grounds that there is an important difference between creating embryos for reproductive purposes, and then discarding those no longer needed, and creating embryos solely for the purpose of research, and destroying them in the process. The difference is that creating embryos for research treats the embryo as a mere object. Doing this ‘may increasingly lead us to think of embryos generally as means to our ends rather than as ends in themselves’ (National Bioethics Advisory Commission 1999: 56).

But this justification, I submit, confuses respect for embryos with Kantian respect. We *cannot* treat embryos as ends in themselves; they are not that kind of thing. However, we can and should use them only for morally significant purposes. The creation of IVF embryos to enable infertile people to become parents is a morally significant purpose, and therefore consistent with respect for embryos. However, many of the embryos that are created are not used to establish a pregnancy, but are frozen and ultimately discarded. The justification for the creation of excess embryos is to spare the woman several rounds of superovulatory drugs, which is both physically burdensome and expensive. Thus, the destruction of embryos is as much a part of IVF as the creation of embryos. This is justified by the value of reproduction. However, medical research that has the potential to prolong and improve people's lives is at least as valuable as enabling infertile people to become parents. Therefore, the creation and destruction of human embryos in important scientific research is as justified as it is in the treatment of infertility. Neither contravenes the principle of respect for embryos as a form of human life. The search for new ways to derive ES cells without creating embryos is unnecessary and, in so far as it inhibits the discovery of cures, morally wrong.

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